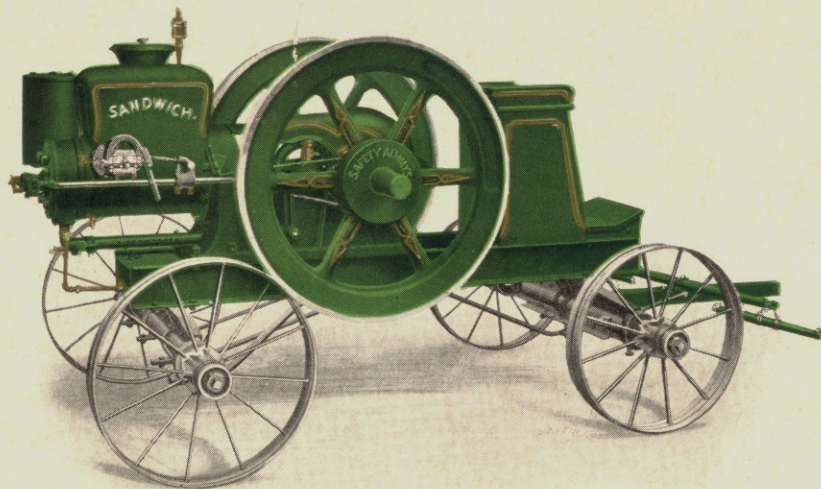
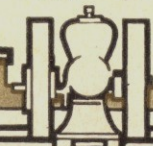




Sandwich Gasoline Engines

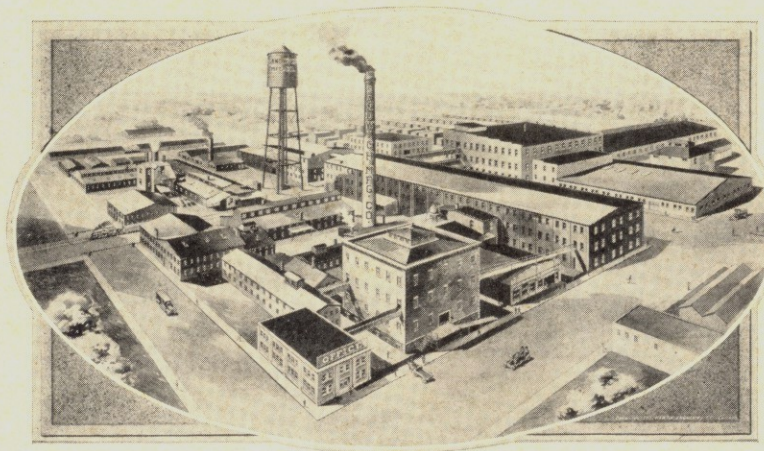


Sandwich Manufacturing Company, Sandwich, Ill., U.S.A.



SANDWICH EXCESS POWER

GASOLINE ENGINES KEROSENE



WHERE SANDWICH EXCESS POWER GASOLINE ENGINES ARE BUILT

SANDWICH MANUFACTURING COMPANY, SANDWICH, ILLINOIS

Branches: COUNCIL BLUFFS, IOWA — CEDAR RAPIDS, IOWA — KANSAS CITY, MISSOURI

An experience of sixty-eight years of successful building of high Class power driven machinery is the background of the production of the Sandwich Excess Power Engines.

Twelve years ago, after several years of study of the gas engine art and of experience in handling them as jobbers, we began their manufacture. "The best gasoline engine sold in the agricultural trade" was the standard we set for the Sandwich Engines. To achieve that standard we employed some of the best engineers we could find; we built and equipped a modern factory especially for this work, and we instructed our designers to produce a line of engines that would develop more power in proportion to their ratings than any others then on the market; to select materials of highest quality and to so proportion the various important working parts as to insure long service and comparative freedom from breakage and replacement cost.

This is the character of engine that we have built for twelve years and that we offer for this season. Many thousands of Sandwich Engines working under difficult conditions the world over, and a large and growing list of enthusiastic users and distributors, testify to the correctness of our designs, our shop practice and our sales policies.

Standardization—Sandwich Engines are uniform in design. Our Engines are not only leaders in the agricultural trade, but have proven their worth in many branches of industrial service.

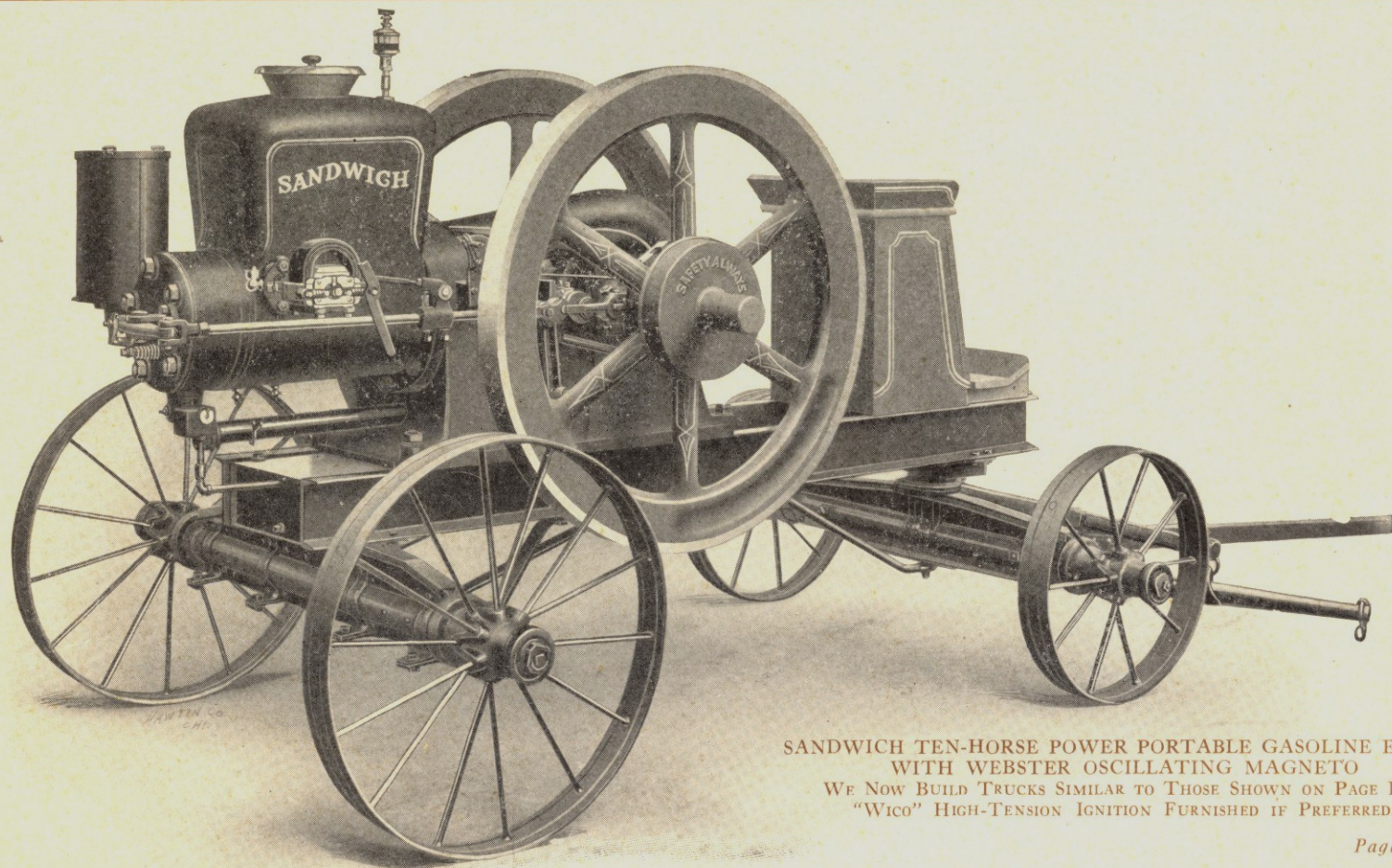
All parts which require, for convenience and good service to our customers, absolute interchangeability and uniformity, are made over jigs and templets. These forms indicate the exact location of every hole, the precise amount of finish required, and variation is impossible.

The manufacture and development of these patterns, forms and templets has cost us years of painstaking labor and a large sum of money, but this investment insures to users of Sandwich Engines motors of high efficiency, long lived and powerful and the ability to obtain repairs at any time which will fit to place without special machine work.

Material—A well equipped and splendidly manned foundry, with the knowledge of the kinds and qualities of irons needed for specific purposes, and, what is equally important, the disposition to purchase the best, regardless of first cost, enable us to produce engine castings of high degree. Chemical analysis guarantees uniformity of our product. Sandwich Engine Castings are strong, tough and smooth. We invite close comparison on these points.

In the purchase of other materials which specialists in various lines can produce to better advantage than any individual engine builder, high quality is always the first requisite with our buyers; price is a matter for secondary consideration only. We guarantee to Sandwich Engine users a high quality product throughout.

Sandwich Excess Power Gasoline and Kerosene Engines : Sandwich Manufacturing Co. : Sandwich, Illinois



SANDWICH TEN-HORSE POWER PORTABLE GASOLINE ENGINE
WITH WEBSTER OSCILLATING MAGNETO
WE NOW BUILD TRUCKS SIMILAR TO THOSE SHOWN ON PAGE FIVE
"Wico" HIGH-TENSION IGNITION FURNISHED IF PREFERRED.

Testing—Each Sandwich Engine is carefully tested and run for hours under the care of an expert. After the engine has fully met every exacting requirement it is carefully inspected by experienced men and any irregularities that may have escaped the notice of the testers are corrected. No engine is allowed to pass on into the finishing room until it has shown a brake test much above the catalog rating of the engine. As a matter of fact, most Sandwich Engines will show from 25 to 40 per cent more power, under brake test, than their rating, none less than 10 per cent.

Re-test—After the engines are painted they are given a final running test, before crating, to insure their perfection.

Painting—The finish of the Sandwich Engines is remarkable for its beauty and durability. On a smooth and well cleaned surface we place five coats of iron filler, paint and varnish. The color is a rich Brewster green, striped in gold and light green.

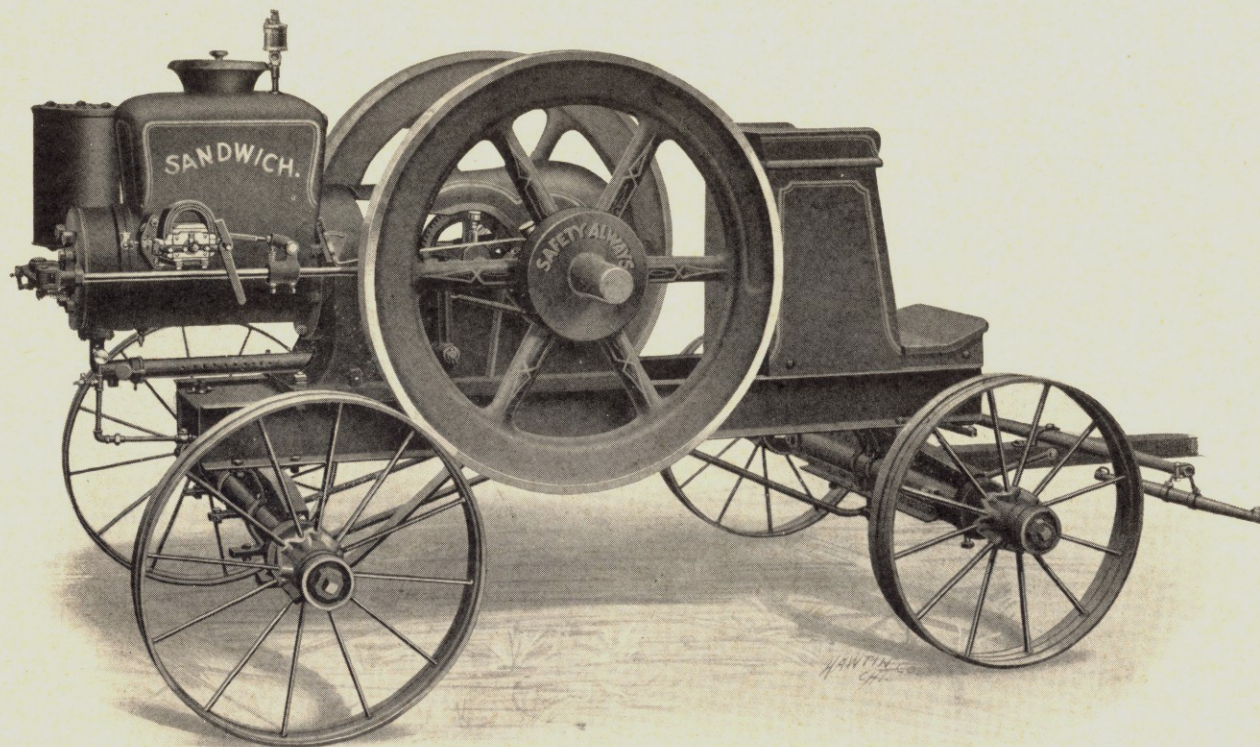
Detailed Description

Sandwich Engines are all of the horizontal type. The beds are unusually heavy and amply strong for the strain put upon them. The crankshaft boxes are cast at an angle of 30 degrees, thus distributing the thrust equally throughout the bed instead of directly against the bolts which secure the box caps. All beds are surfaced and bored in jigs, insuring accuracy.

The four-cycle principle is employed in all Sandwich Engines. Experience has shown, and the best engineers everywhere agree, that of the two-cycle and four-cycle types, the latter is the more economical, practical and durable and especially desirable for agricultural conditions.

A "cycle" in the common understanding of the term, is one complete movement of the piston through the cylinder. Thus there

are two cycles to each revolution of the fly-wheels, and two revolutions and four cycles are required to complete one explosive action, namely, the first **out-stroke** during which the exhaust valve is closed, the inlet or feed valve opened, and a charge of gasoline drawn into the cylinder from the mixing device. The second cycle is the first **in-stroke** of the piston, which compresses the charge of gasoline and at the moment of greatest compression mechanically ignites or fires the charge. The third cycle is the second out-stroke, commonly called the power stroke, by which the expansive force of the ignited gas is transmitted through the connecting rod to the crankshaft and made available for power. The fourth cycle is the second in-stroke, commonly called the scavenger stroke, during which the exhaust valve is opened, and the burned gases are forced out through the exhaust pipe and muffler.



EIGHT-HORSE PORTABLE ENGINE WITH WEBSTER OSCILLATING MAGNETO
WICO HIGH TENSION MAGNETO SUPPLIED IF DESIRED.

Cylinders—The cylinders of Sandwich Engines are cast of a specially close-grained iron, with a small admixture of steel to insure toughness and lasting quality. The cylinders are water-jacketed their entire length, and as the water channels are unusually large and free from pockets, perfect cooling is insured.

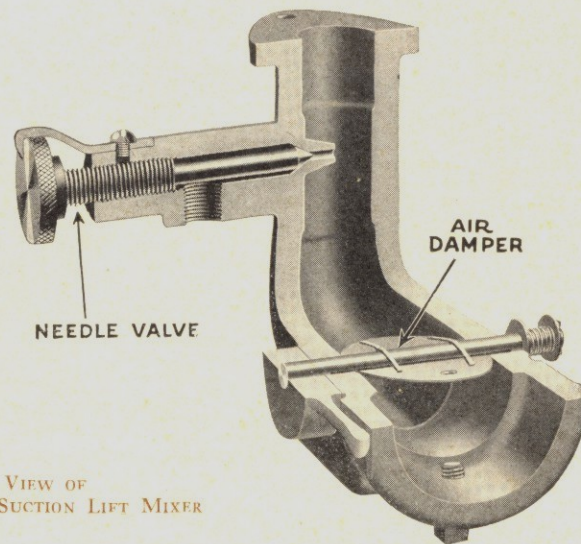
All cylinders (with the exception of the 1½, “Junior” and the “Cub”) are cast separate from the beds of the engines, hence should breakage result from any cause it is only necessary to purchase a new cylinder, and as all machine work on the cylinders is done in jigs and templets, replacement is easy and certain.

Cylinder Head—All cylinder heads with the exception of the “Cub,” “Junior” and 1½ h. p. are water-jacketed, with space for free circulation of water around the valves. They are secured to the cylinder with heavy stud bolts. A shoulder on the head fits closely into the bore of the cylinder, thus protecting the packing and insuring a tight joint.

Valves—The intake and exhaust valves are of the poppet type, one piece, drop-forged. They are of the modern large diameter pattern finely finished and perfectly seated. The control springs are of highest quality, oil tempered.

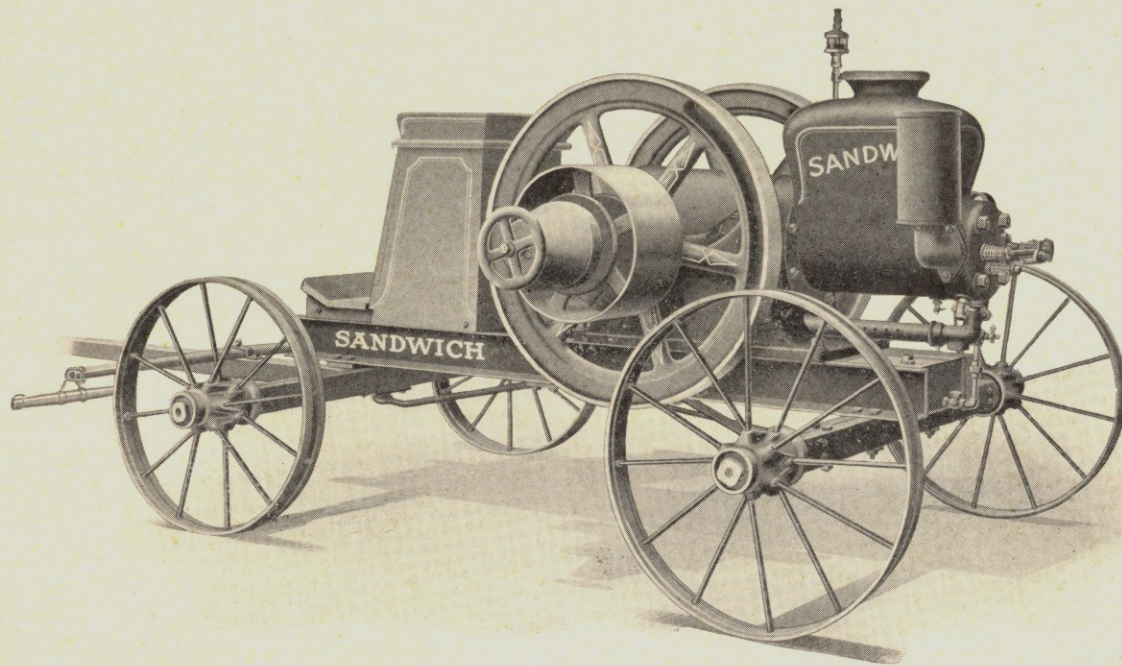
Intake Valve Lock—On Sandwich Engines, “Big Six” horsepower and larger, the intake valves are provided with a simple and positive lock which keeps the valve tight closed on the idle stroke, preventing any waste of fuel.

Page Six

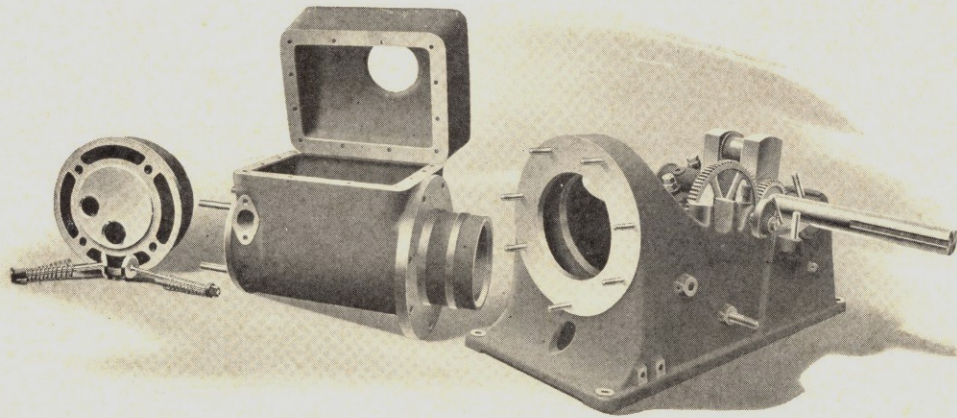


SECTIONAL VIEW OF
GASOLINE SUCTION LIFT MIXER

Mixer—The mixer or carburetor on the Sandwich Engine is very simple. The feed of the gasoline is controlled by a needle valve, which is accurately fitted and has a convenient hand wheel. The fuel is drawn into the mixing chamber by the suction of the piston and strikes the walls of the air pipe in such a manner as to break it up into a fine spray, where it is thoroughly mixed with air and drawn directly into the explosion chamber of the cylinder. The amount of air is controlled by a damper.

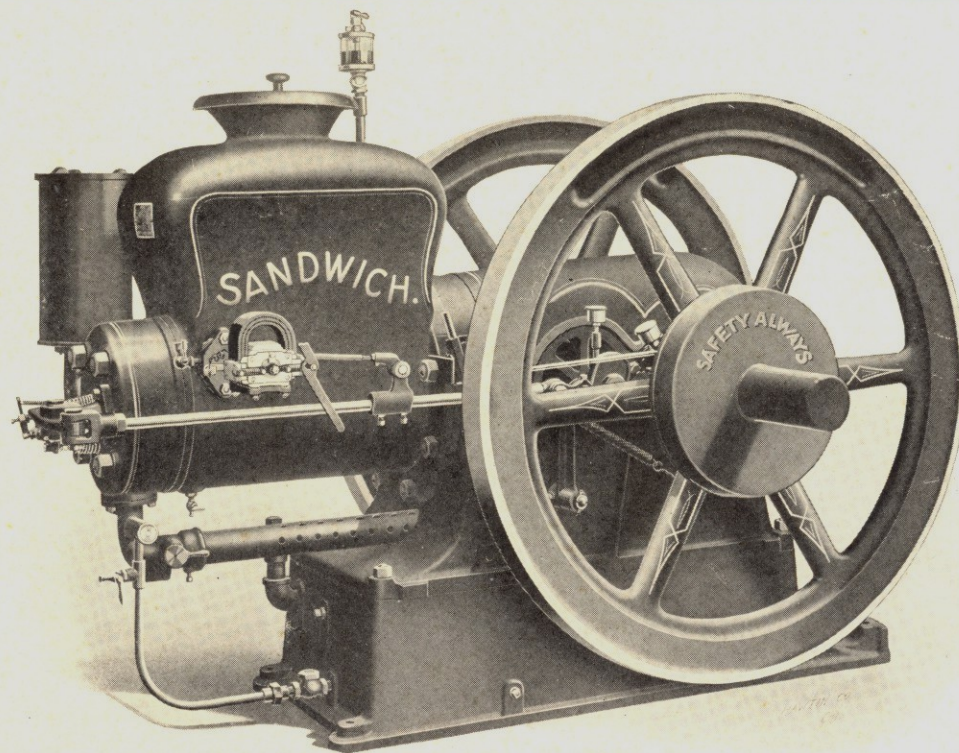


"BIG" SIX-HORSE PORTABLE ENGINE WITH FRICTION CLUTCH PULLEY



SANDWICH CYLINDER HEAD, CYLINDER, HOPPER AND BASE

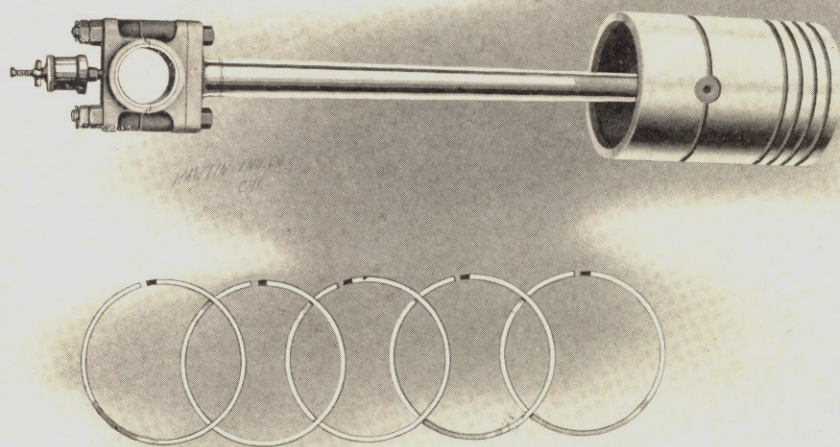
NOTE THE ACCURATELY MACHINED JOINTS AND TWO-COLLAR BEARING FOR CYLINDER IN BED, INSURING ABSOLUTELY CORRECT ALIGNMENT. WATER HOPPER CAST SEPARATE FROM CYLINDER ON EIGHT-HORSE AND LARGER SIZES, CYLINDER AND BED CAST SEPARATELY ON ALL SIZES EXCEPT THE $1\frac{1}{2}$, "JUNIOR" AND THE "CUB." EXTRA LARGE CRANK SHAFTS, EXTENDED BOTH ENDS FOR PULLEYS. CAM GEARS INSIDE OF BED, CAM OUTSIDE, BALANCING THE STRAIN.



SANDWICH FULL BASE GASOLINE ENGINE

ILLUSTRATION REPRESENTS FOUR, SIX, EIGHT AND TEN-HORSE SIZES, WITH WEBSTER OSCILLATING MAGNETO
WICO MAGNETO SUPPLIED IF DESIRED.

All Sandwich Engines are regularly built with gasoline tank directly under the base, in galvanized iron tank or cast sub-base, according to size and equipment of engine. When engines are to be permanently installed in a building and it is desirable to have the gasoline tank placed outside, at some distance, a fuel pump will



PISTON, CONNECTING ROD, AND PISTON RINGS

be furnished, for the six-horse and larger sizes (kerosene type), but for the portable, semi-portable and skidded equipments, the feed pump is unnecessary, and the "suction lift" will be found entirely dependable.

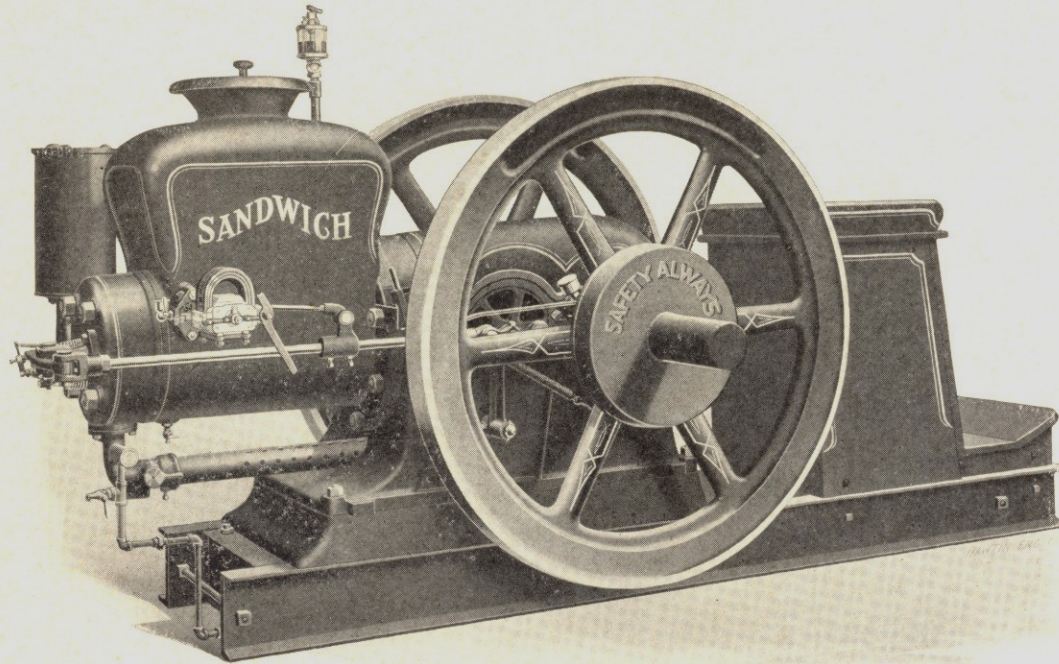
Page Ten

Ignition—For a number of years we have supplied as standard the Webster Oscillating, low-tension Magneto. We now offer our customers the choice of either the Webster or the Wico high-tension Magneto, with spark plug. Each system has its strong and distinctive features and each is reliable. We will be glad to send, on application, pamphlets giving detailed description of both types. When the Wico is supplied we equip it with a hand-trip device, of our own design, a patented feature, by which the engine is easily started by pulling piston up against reverse compression. No other user of Wico ignition, so far as we are aware, provides this feature. A similar device will be found on the Webster Magneto. There is no difference in price between the two ignition systems as applied to our engines. Can also supply Battery Ignition if preferred.

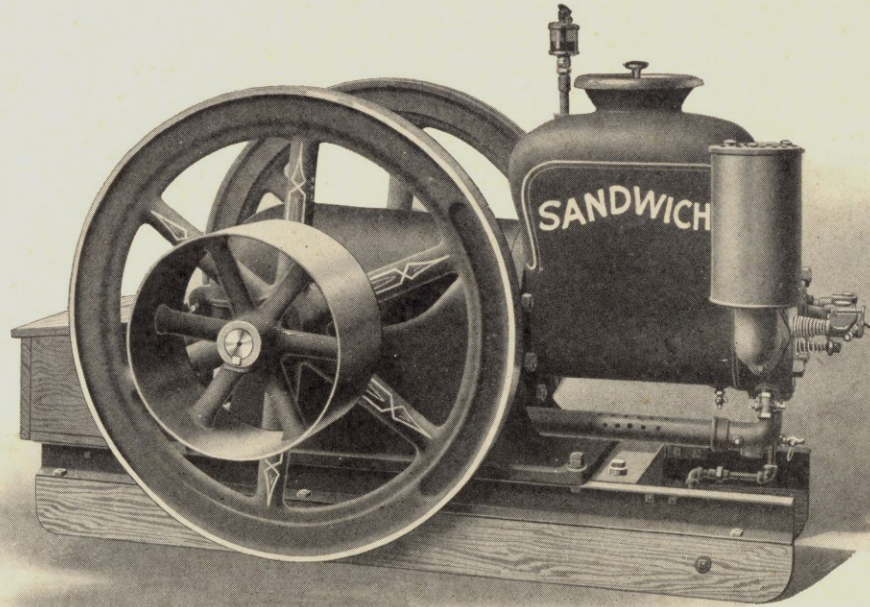
Speed Changer—Sandwich Engines are provided with a speed regulator with which the speed may be varied from the rated motion to about one-third less. The hand-adjusting lever, on the larger sizes, is fastened to the side of the engine, avoiding the necessity of reaching around the fly-wheel.

Governor—The motion of Sandwich Gasoline Engines is controlled and made uniform by a very simple governor apparatus, of the spring weight, centrifugal type, connected directly to the fly-wheel. A sliding collar on crankshaft connects by means of a flexible detent to the single side rod. Any tendency to higher speed than normal is checked by this device automatically opening the exhaust valve, closing and locking the inlet valve and cutting out the electric spark. As the motion lowers below normal, the control action opens inlet valve, closes the exhaust and the charge is fired. The cam and cam roller which operate and time the action of the single side rod are hardened and ground.

As the single side rod is quiet on the idle strokes all wear on the working parts is saved and there is no waste of fuel or electric current. While the governor action is very simple, it is finely adjusted and the **control** is extremely uniform and accurate.

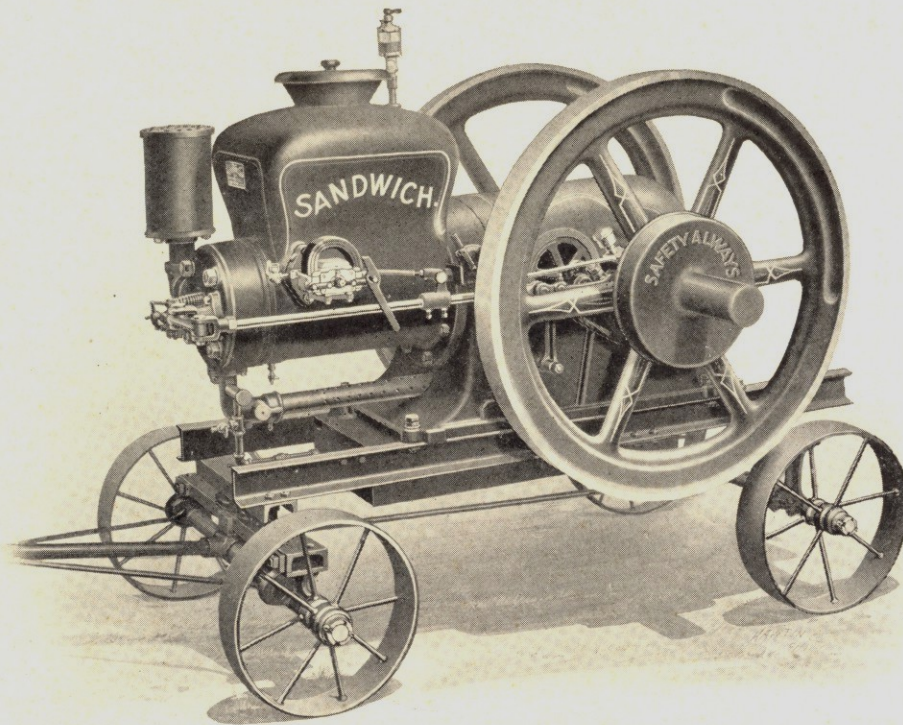


SANDWICH "BIG SIX," EIGHT AND TEN-HORSE SEMI-PORTABLE ENGINE, WITH WEBSTER OSCILLATING MAGNETO
FOR MOUNTING ON FARM TRUCK
WICO HIGH TENSION MAGNETO FURNISHED IF PREFERRED.



SANDWICH FOUR AND "LIGHT" AND "BIG" SIX-HORSE SKIDDED ENGINE

ENGINES ARE MOUNTED ON STEEL CHANNELS, TO THESE ARE BOLTED HARDWOOD SILLS. IN MOUNTING FOR HAND PORTABLE RIG, REMOVE THE WOOD SILLS, AND THE CHANNELS WILL BE FOUND PROPERLY BORED TO TAKE BOLSTERS FOR TRUCKS



SANDWICH "BIG" SIX-HORSE HAND PORTABLE
WITH WEBSTER OSCILLATING MAGNETO
WICO HIGH TENSION MAGNETO FURNISHED TO SPECIAL ORDER.

Safety Cover—A very desirable feature of Sandwich Engines, one that will appeal to all prospective buyers, and is not found on many, if any, other makes, is a cast cover over the end of crankshaft and governor parts. This cover makes impossible the catching of clothing on shaft or governor springs, and also adds to the attractive appearance of the engine.

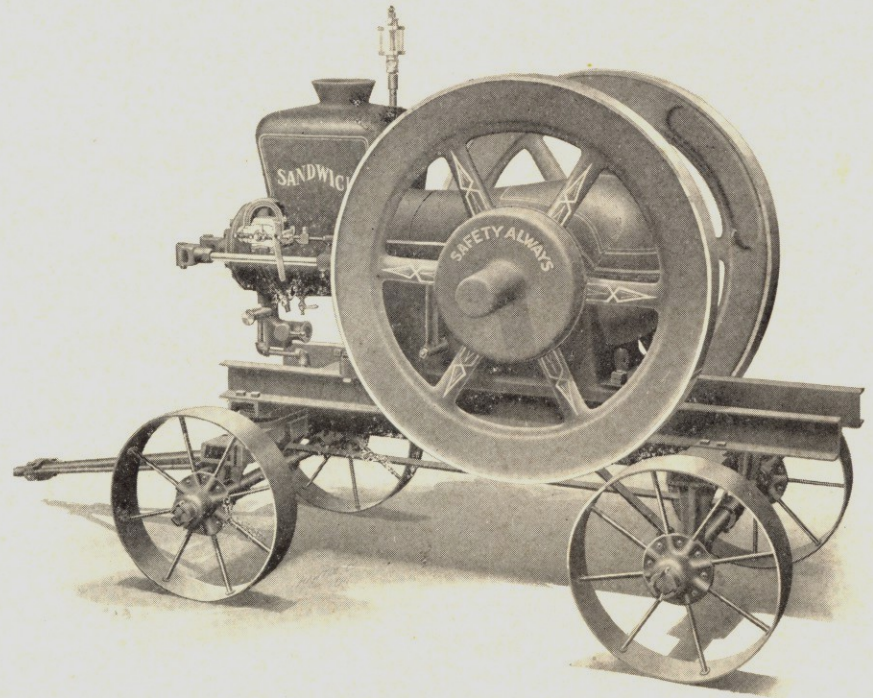
Piston—Our pistons are very carefully ground, are extra long so as to provide ample wearing surface, and the piston pin is hardened and ground. The piston pin bearing is a bronze bushing with adjustable take-up for all wear.

The piston rings are very carefully made and closely machined, to a perfect fit. The "Big" six-horse and larger sizes are equipped with five rings; the smaller sizes with four and three rings. In all Sandwich Engines, four horse and larger, the front ring is located over the opening in piston for piston pin, thus preventing the scoring of the piston should the pin by any chance work to one side.

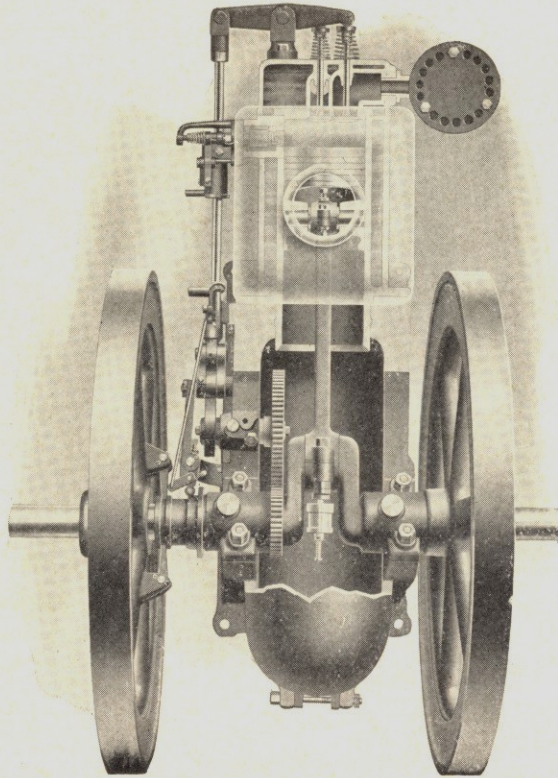
The high compression of the Sandwich Engines shows correct design and careful machine work, and makes for high power.

Cooling—Sandwich Engines are of the hopper or open jacket type. Up to and including the six-horse power size the water hopper is cast with and is a part of the cylinder, but with all sizes except the "Cub," 1½ and "Junior" the cylinders are cast separate from the engine bases. All engines larger than six-horse have water hoppers cast separate from the cylinders. The water hoppers and circulating channels have all been accurately determined as to size and provide ample and safe cooling capacity, without detracting from the heat value of the fuel. A drain cock permits the quick withdrawal of the water when the engine is to be stored in freezing atmosphere.

Page Fourteen



SANDWICH FOUR-HORSE HAND PORTABLE ENGINE WITH WEBSTER
OSCILLATING MAGNETO



SECTIONAL VIEW SANDWICH ENGINE

Connecting Rods—The connecting rods of the Sandwich Engines are drop-forged steel. The ten horse-power size has hammered forged steel rod. The proportions are liberal, providing ample strength for the power of the engine, including a liberal overload.

Crankshafts—The crankshafts on all Sandwich Engines are of very liberal size, made of the best quality steel, drop-forged and heat treated. They are carefully machined and ground, making every shaft interchangeable. On the larger sizes the shafts are extended to take pulleys at both ends, a very desirable feature. On the "Junior" and the "Cub" engines the pulley is bolted to the spokes of the balance wheels, and both wheels are bored for pulleys.

Crank Case Covered—A cast cover is provided for the crank-case, preventing any spattering of oil and shielding these important working parts of the engine from dust and grit.

Bearings—At the piston end a bronze bushing is provided for all sizes, and the $2\frac{1}{2}$ horse-power and larger have an adjustment for taking up wear. The wrist or crank-pin bearing is of bronze on the eight-horse power size and larger, and on the four and six-horse sizes is of high-grade babbitt metal. The $1\frac{1}{2}$, "Junior," "Cub" and $2\frac{1}{2}$ horse-power sizes have removable die-cast wrist bearings. All bearings are of good length, the box caps are heavy and double nutted and the main crankshaft bearings are set at an angle of 30 degrees so as to receive the thrust at the heaviest part of the bearing and distribute it equally throughout the main frame of the engine.

Another New Sandwich Engine The "LIGHT SIX"

We call it thus to distinguish it from our regular "Big Six" Engine which we have built for many years and which, while rated as six horse-power, develops under brake test better than eight horse-power and has done the work of other engines bearing the latter rating.

There is, however, a demand for a lighter six horse; an engine that will do the ordinary six-horse jobs on farms and in industrial service, with a comfortable margin of power for overload.

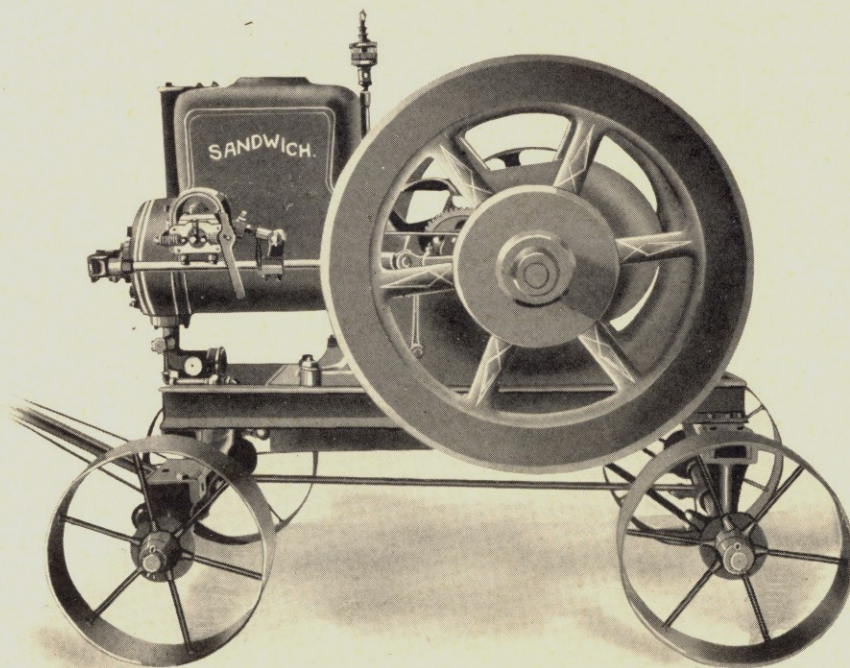
We have developed in this Light Six Engine, one that will show about 6.7 power under brake, that runs smoothly, has ample weight and quality of material to insure long life and is qualified in all essentials to take its place as a member of the "Sandwich Line."

The bore is $5\frac{5}{8}$ in., stroke 7 in., speed 400 and weight, skidded, 947 lbs. See page 21 for other specifications.

The design of the Light-Six is in every important detail identical with that of our other standard engines. We do not hesitate to recommend it for any service within its range of power.

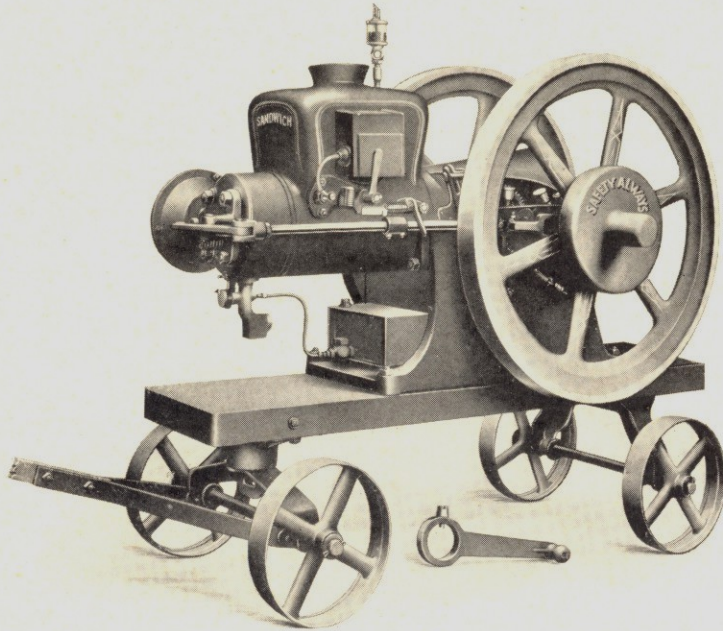
We also are prepared to furnish the Light-Six Engine equipped for burning kerosene. For this purpose we have developed a very simple form of carburetor and mixer; this engine is throttle or volume controlled; runs very smoothly and will please those buyers who prefer to burn kerosene and who will put the engine in service where the loads are fairly constant.

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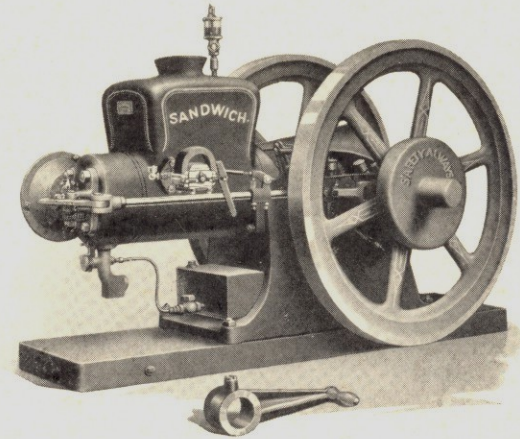


"LIGHT SIX" HAND PORTABLE ENGINE WITH WEBSTER
OSCILLATING MAGNETO
THE WICO HIGH TENSION IGNITION SUPPLIED IF DESIRED

Sandwich Excess Power Gasoline and Kerosene Engines : Sandwich Manufacturing Co. : Sandwich, Illinois



TWO AND ONE-HALF HORSE HAND PORTABLE ENGINE
EQUIPPED WITH WICO HIGH TENSION MAGNETO. WEBSTER
MAGNETO FURNISHED IF DESIRED.



TWO AND ONE-HALF HORSE SKIDDED ENGINE
WITH WEBSTER OSCILLATING MAGNETO
WICO HIGH TENSION MAGNETO SUPPLIED
IF PREFERRED.

WE ALSO BUILD THE TWO AND ONE-HALF ENGINE WITH
THROTTLE OR VOLUME GOVERNOR

Sandwich Light-Weight General Purpose Engines

We offer three models of Small Engines all coming under the general classification of one and one-half horse power

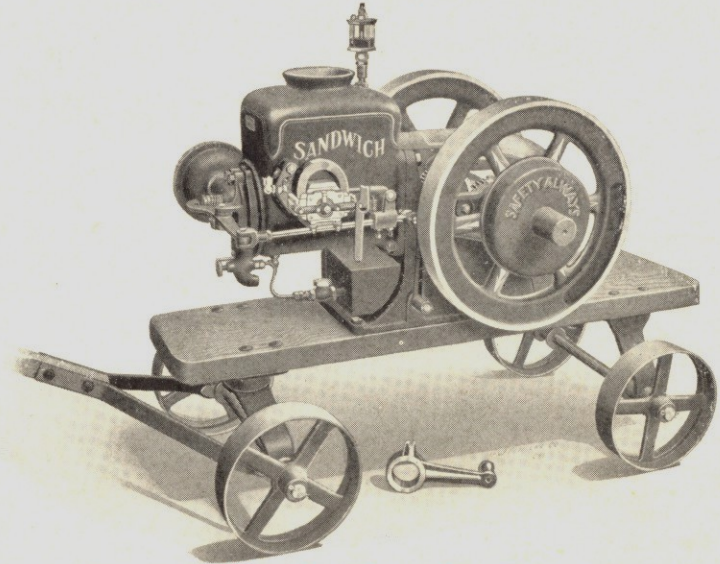
Sandwich Standard 1½ H. P.—In designing this engine we have deliberately planned for and built the best, (while perhaps the most expensive to build) engine of this rating on the market. Many thousands of these engines are performing satisfactory service year in and year out thruout the world, supplying dependable and economical power for a wide variety of purposes, agricultural and industrial.

This engine is bored 3¾", the stroke is 5", normal speed 500 R. P. M. and the power developed is greater than that of any other engine rated 1½ h. p., in fact most builders would rate this engine as a two horse-power, and would be justified in doing so by its brake test, its weight and endurance. A comparison with the specifications of most 2 h. p. engines will show our Standard One and One-Half is in a class by itself, pre-eminently the biggest, strongest and most economical engine of that rating, on the market.

The crankshaft is 1⅜" diameter; the shaft boxes are large, filled with high-grade babbitt and fitted with hard oilers. The wrist bearing is die-cast and replaceable. The shaft is extended at both ends for pulley, and the governor end is protected by a cast shield against accident to the operator. A hinged cast cover over crankcase prevents oil from flying and protects gears and crank.

The connecting rod is well designed and strong and is equipped with removable, adjustable bronze bushing over piston pin. The water hopper is unusually large. The cylinder head is air-cooled, requiring less attention and avoiding the repair bills common to

water-cooled heads on engines having the wide range of work common to this size. The fuel tank is of galvanized iron and is placed under the engine bed, out of the way of accident.



ONE AND ONE-HALF HORSE-POWER HAND PORTABLE ENGINE
WITH WEBSTER OSCILLATING MAGNETO
WICO HIGH TENSION MAGNETO SUPPLIED IF PREFERRED.

A single side rod operates igniter and valves; the governor is simple and effective and engine has a speed control device by which the motion may be reduced about 35% without change of governor springs.

Our customers have the choice of either the Webster low-tension Magneto Ignition, the simple Wico high-tension Magneto with spark plug, or of dry cell batteries. Both styles of magnetos have spark retarding devices and hand starter trips by which the engine may be started by pulling piston against reverse compression, if desired.

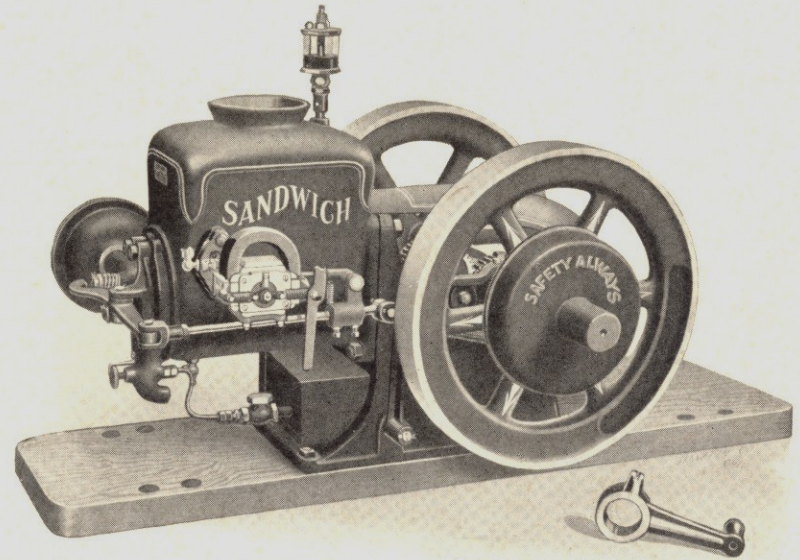
The engine regularly has a heavy wood skid mounting. We furnish at slight additional cost a well made hand truck. The wood skids are all bored to fit the truck, hence the mounting is easily accomplished if engine is not originally equipped with truck at factory.

Two Lighter Engines, Developing 1½ h. p. and Better

For many industrial installations, the smaller cement mixers, pumping outfits and the like—the full power of our Standard 1½ h. p. engine is not required, and an engine of somewhat less bulk and weight is preferred where space is scarce and excess weight undesirable. Much of the odd work about the farm, also, such as pumping water, running the washing machine, cream separator, small corn sheller, the cement mixer, etc., can be done as well by an engine lighter and smaller than our Standard 1½ h. p.

To meet this demand we now offer two splendid engines which, while differing somewhat in construction details from our older models, are not less efficient and dependable within their range and

their good qualities and reliability have been proven by many hundreds in varied service all over the country. We employ in these engines the same high quality of material, workmanship and inspection that we demand for our larger sizes; they are nicely finished and we back them with our name and warranty with full assurance that will satisfy every reasonable demand.



SANDWICH ONE AND ONE-HALF HORSE-POWER ENGINE SKIDDED
WITH WEBSTER OSCILLATING MAGNETO
WICO HIGH TENSION MAGNETO SUPPLIED IF PREFERRED.

“Junior” and “Cub” Engines

We call these engines the “Junior” and “Cub.” They differ only in the dimensions and weight of frame and balance wheels, the “Junior” having a slightly larger bore of cylinder, with other parts to correspond and consequent greater power development.

Unlike our Standard $1\frac{1}{2}$ h. p. engines, which have the cylinder cast separate from the main frame, these two lighter engines have the frame cast in one piece, which, while comparatively light, is made very strong by an ingenious method of using the truss principle in the design. The upper portion of frame extends over the crank case, effectually covering and protecting it. A convenient opening in the front is provided thru which adjustments are made.

The bore of the “Junior” is $3\frac{1}{2}$ ”, stroke 5”, speed 550 R. P. M. and it will show under brake test $1\frac{7}{8}$ h. p. The balance wheels are 17 in. in diameter. Pulley 4x4”, bolted to balance wheel on either side.

The “Cub” Engine has $3\frac{1}{4}$ ” bore, stroke 5”, speed 550 R. P. M. and tests strong $1\frac{1}{2}$ h. p. under brake. The balance wheels are 16 in. diameter. The pulley is 4x4” and may be bolted to either balance wheel.

We can furnish 5”x4” and 6”x4” pulleys for both “Junior” and “Cub” Engines, to special order.

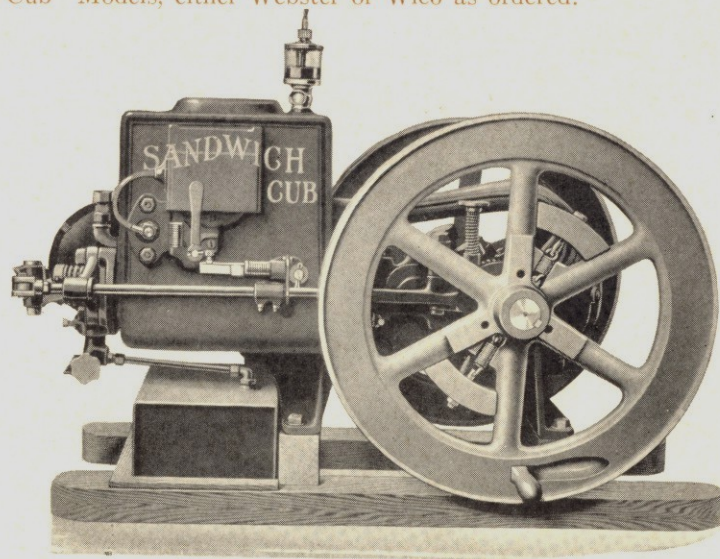
We employ in the “Junior” and “Cub” Engines I-Beam connecting rods with removable die-cast wrist bearings and bronze bushings for the piston pins. The engines have machine-cut cam gears and effective speed changing devices. The starting crank is built in the rim of flywheel; the crankshafts are large and well made; the engines are perfectly balanced, very quiet running and economical in fuel consumption. The finish is a beautiful Brewster green with gold and light green striping.

Page Twenty

In appearance and operation these engines compare favorably with the very best models on the market.

The “Junior” and “Cub” Engines are mounted on substantial wood skids, which are bored for placing on a well made, light and convenient Hand Truck Mount, furnished to special order.

Ignition—Magneto Ignition is standard with the “Junior” and “Cub” Models, either Webster or Wico as ordered.



“Cub” and “Junior” Skidded Engine, Equipped with Wico High Tension Magneto.

WEBSTER MAGNETO FURNISHED IF DESIRED.

Sandwich Excess Power Gasoline and Kerosene Engines : Sandwich Manufacturing Co. : Sandwich, Illinois

SPECIFICATIONS

Code Word	Horse Power	Description	Speed R. P. M.	Bore of Cylinder Inches	Stroke Inches	Standard Pulley	Clutch Pulley	Size Fly Wheel	Size Truck Wheel	Capacity Fuel Tank Gallons	Shipping Weight, Pounds
"Cub"	1 $\frac{1}{4}$	Skidded.	550	3 $\frac{1}{4}$	5	4 x 4		16 x 1 $\frac{1}{2}$		1	235
"Cub"	1 $\frac{1}{4}$	Hand Portable	550	3 $\frac{1}{4}$	5	4 x 4		16 x 1 $\frac{1}{2}$	8 x 1 $\frac{1}{2}$	1	280
"Junior"	1 $\frac{1}{2}$	Skidded.	550	3 $\frac{1}{2}$	5	4 x 4		17 x 1 $\frac{1}{2}$		1	260
"Junior"	1 $\frac{1}{2}$	Hand Portable.	550	3 $\frac{1}{2}$	5	4 x 4		17 x 1 $\frac{1}{2}$	8 x 1 $\frac{1}{2}$	1	305
Buxomness	1 $\frac{1}{2}$	Skidded.	500	3 $\frac{3}{4}$	5	4 x 4		16 x 2		1	369
Byword	1 $\frac{1}{2}$	Hand Portable.	500	3 $\frac{3}{4}$	5	4 x 4		16 x 2	8 x 1 $\frac{1}{2}$	1	449
Buoyantly	2 $\frac{1}{2}$	Skidded.	400	4 $\frac{1}{4}$	6	8 x 6	8 x 6	26 x 2		2	655
Cultivate	2 $\frac{1}{2}$	Hand Portable.	400	4 $\frac{1}{4}$	6	8 x 6	8 x 6	26 x 2	10 $\frac{1}{2}$ x 2 $\frac{1}{2}$	2	733
Curateship	4	Skidded.	375	5 $\frac{1}{8}$	7	12 x 6	14 x 6	30 x 2		6	916
Bulltrout	4	Full Base	375	5 $\frac{1}{8}$	7	12 x 6	14 x 6	30 x 2		6	1062
Burgrave	4	Half Base	375	5 $\frac{1}{8}$	7	12 x 6	14 x 6	30 x 2		6	902
Burnishing	4	Hand Portable.	375	5 $\frac{1}{8}$	7	12 x 6	14 x 6	30 x 2	16 x 3 $\frac{1}{2}$	6	1090
Skid-Light	"Light" 6	Skidded.	400	5 $\frac{5}{8}$	7	12 x 6	14 x 6	30 x 2		6	947
Full-Light	6	Full Base	400	5 $\frac{5}{8}$	7	12 x 6	14 x 6	30 x 2		6	1094
Half-Light	6	Half Base	400	5 $\frac{5}{8}$	7	12 x 6	14 x 6	30 x 2		6	945
Hand-Light	6	Hand Portable.	400	5 $\frac{5}{8}$	7	12 x 6	14 x 6	30 x 2	16 x 3 $\frac{1}{2}$	6	1104
Curvature	"Big" 6	Skidded.	350	6 $\frac{1}{8}$	9	16 x 6	16 x 6	35 x 2 $\frac{1}{2}$		7 $\frac{1}{2}$	1474
Bushelage	6	Full Base	350	6 $\frac{1}{8}$	9	16 x 6	16 x 6	35 x 2 $\frac{1}{2}$		7 $\frac{1}{2}$	1550
Bushiness	6	Half Base	350	6 $\frac{1}{8}$	9	16 x 6	16 x 6	35 x 2 $\frac{1}{2}$		7 $\frac{1}{2}$	1434
Bustling	6	Hand Portable.	350	6 $\frac{1}{8}$	9	16 x 6	16 x 6	35 x 2 $\frac{1}{2}$	16 x 3 $\frac{1}{2}$	7 $\frac{1}{2}$	1660
Cutchery	6	Semi-Portable Steel Sills . .	350	6 $\frac{1}{8}$	9	16 x 6	16 x 6	35 x 2 $\frac{1}{2}$		7 $\frac{1}{2}$	1500
Buttercup	6	Portable Steel Sills	350	6 $\frac{1}{8}$	9	16 x 6	16 x 6	35 x 2 $\frac{1}{2}$	Front 28 x 3, Rear 30 x 3	7 $\frac{1}{2}$	1991
Buttermilk	8	Full Base	300	7 $\frac{1}{16}$	10	18 x 8	24 x 8	42 x 2 $\frac{3}{4}$		12	2494
Butterwort	8	Half Base	300	7 $\frac{1}{16}$	10	18 x 8	24 x 8	42 x 2 $\frac{3}{4}$		12	2177
Cyanide	8	Semi-Portable Steel Sills . .	300	7 $\frac{1}{16}$	10	18 x 8	24 x 8	42 x 2 $\frac{3}{4}$		12	2575
Buxomley	8	Portable	300	7 $\frac{1}{16}$	10	18 x 8	24 x 8	42 x 2 $\frac{3}{4}$	Front 26 x 4, Rear 32 x 4	12	2826
Cupboard	10	Full Base	300	7 $\frac{1}{2}$	11	18 x 8	24 x 8	46 x 2 $\frac{3}{4}$		12	3046
Cuperous	10	Half Base	300	7 $\frac{1}{2}$	11	18 x 8	24 x 8	46 x 2 $\frac{3}{4}$		12	2714
Custodial	10	Semi-Portable Steel Sills . .	300	7 $\frac{1}{2}$	11	18 x 8	24 x 8	46 x 2 $\frac{3}{4}$		12	3020
Curative	10	Portable	300	7 $\frac{1}{2}$	11	18 x 8	24 x 8	46 x 2 $\frac{3}{4}$	Front 26 x 4, Rear 34 x 4	12	3217

Ignition

A dependable and economical method of Ignition is indispensable to the success of any gasoline engine. Without it the best of engine construction is no better than the poorest. Recognizing this fact we have always striven to provide the best.

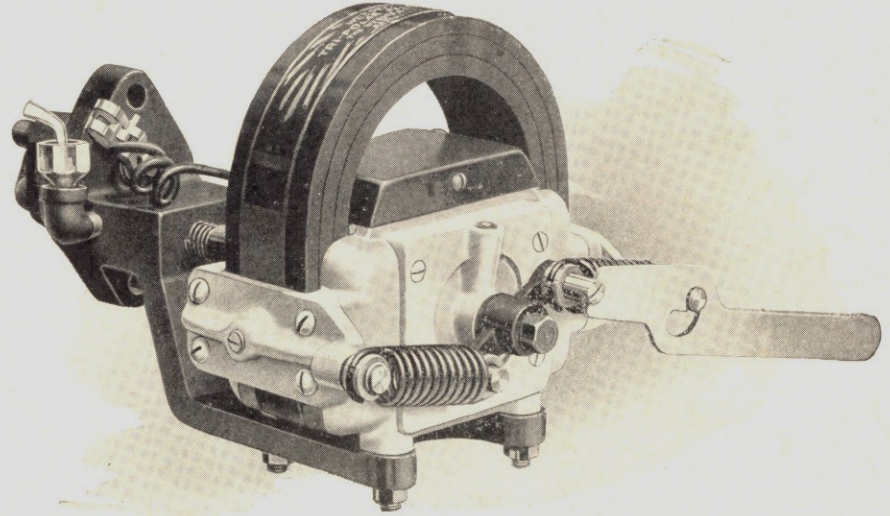
We have for a number of years used as a standard the Webster Oscillating Magneto, and with marked success. They require no battery for starting the engine. Are provided with a hand trip by which the engine may be started by turning over against "reverse compression" or in the running direction. The magneto is at rest on all but the firing stroke; it is provided with a priming cup, a spark retarding device and the various parts are simple and replaceable after long wear.

The Webster is of the "low tension" type and will be furnished on Sandwich Engines for the coming season unless otherwise specified by the buyer.

The Wico Magneto

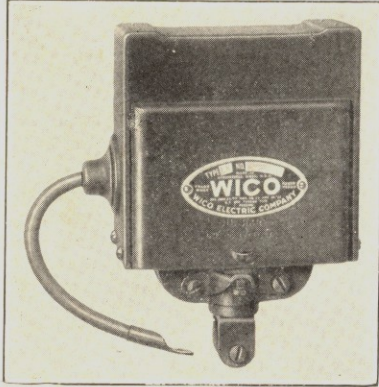
We are also prepared to furnish, on special order, the deservedly popular high-tension Magneto known as the "Wico." This is a very simple instrument; operated by a trip on the side rod of engine and probably has less parts to get out of order and subject to wear than any other make. Instead of a movable mechanical

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WEBSTER OSCILLATING MAGNETO

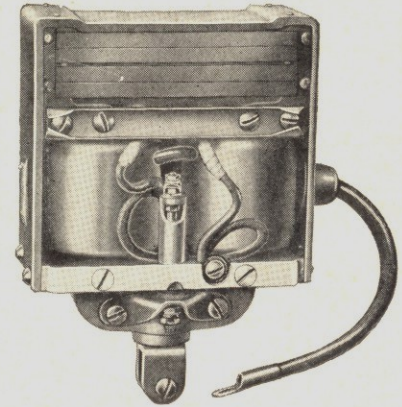
igniter such as is used with the Webster, the Wico employs a spark plug, just such as is used on all autos. It delivers a very hot spark, the timing of which is easily adjusted. It is provided with a spark retarding device. This type of ignition, the Wico, is now used as standard by many of the largest builders, but as employed on Sandwich Engines it will be provided with a simple hand trip device, which makes it possible to start the engine by pulling up



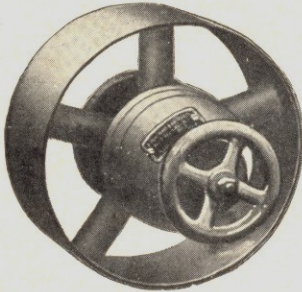
"Wico" HIGH TENSION MAGNETO

against "reverse compression." The hand trip is very useful in tracing trouble and in testing out the magneto and spark plug. It is a great aid to a dealer in demonstrating the magneto and the good points of an engine on a sample floor. This is a Sandwich development and is protected by patent application.

We give our patrons the choice between these two ignition systems, at no difference in price.



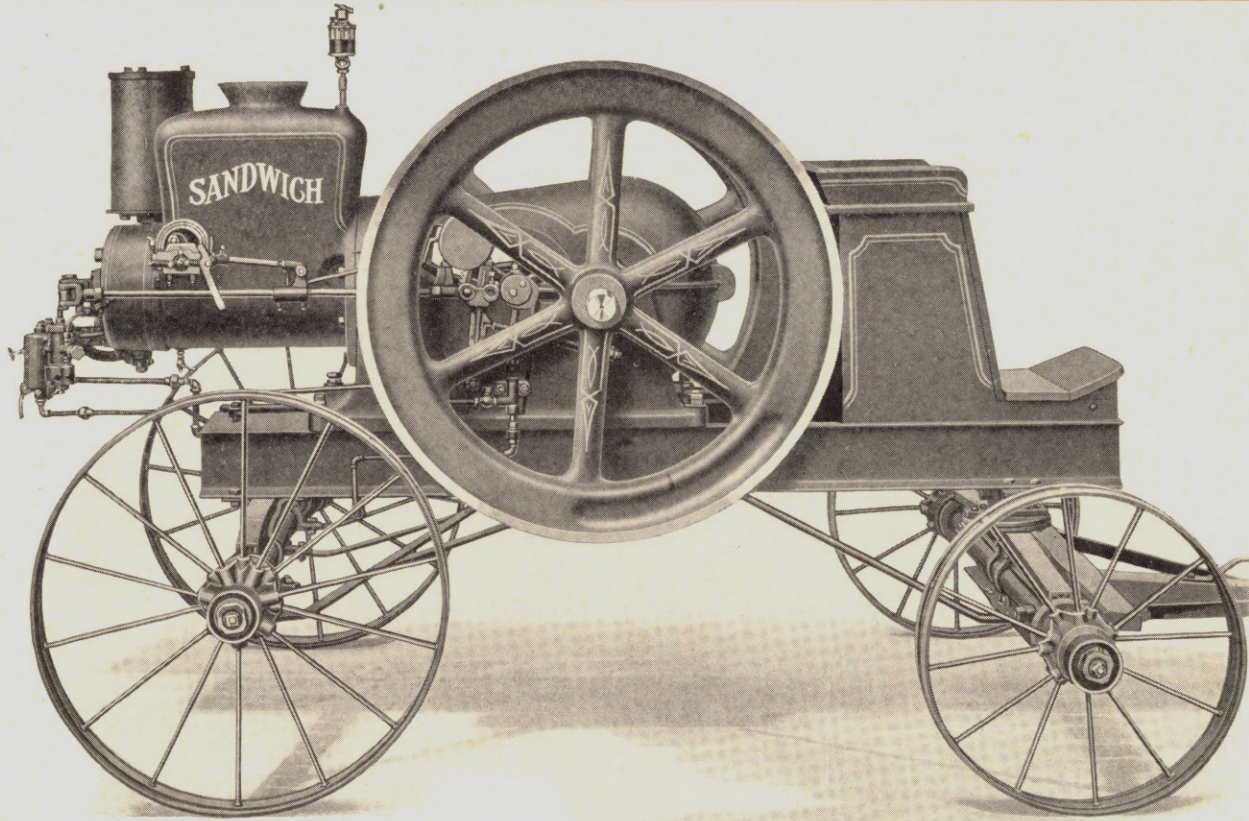
PHANTOM VIEW OF "WICO" HIGH TENSION MAGNETO, COVER REMOVED TO SHOW MECHANISM.



FRICTION CLUTCH PULLEY

Pulleys—A plain turned pulley is furnished with each engine, unless otherwise specified. Friction clutch pulleys of excellent design, simple, convenient and safe, may be supplied at an additional charge.

Sub-Base—When it is desired to mount the engine on a permanent foundation, the regular engine base is all that will be required. A heavy cast sub-base is supplied by us at slight additional cost.



Sandwich Kerosene Engines

In the production of our Kerosene Engines we employ the same high grade skill and material, and give them the same attractive and unusual finish, that has given Sandwich Gasoline Engines their high standing in the trade.

There is a demand for a real, made-for-the-purpose kerosene engine. The numerous attachments and makeshifts that have appeared from time to time have discouraged many buyers. There is real economy in burning coal oil where the load is fairly heavy and continuous. It is doubtful whether there is any saving in using that fuel with small engines, running under light loads and for short intervals.

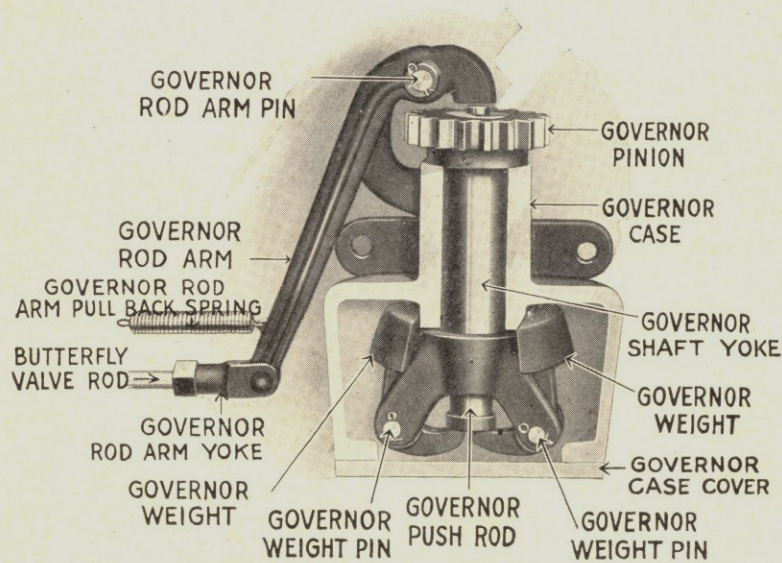
Sandwich Kerosene Engines differ greatly from our gasoline engines in mixers, governors and other important construction details. They use gasoline for starting, having a small individual reservoir for that fuel, with a single lever for switching from one fuel to the other. If while running on kerosene the engine is stopped it is not necessary to drain the unused coal oil from the reservoir. The fuel lever is turned back to the gasoline side and the engine is readily started again. As a matter of course these engines will work as well on gasoline, as any of our regular gasoline engines.

We build the kerosene engines in six, eight and ten-horse sizes, and the 2½ horse-power is in process of development.

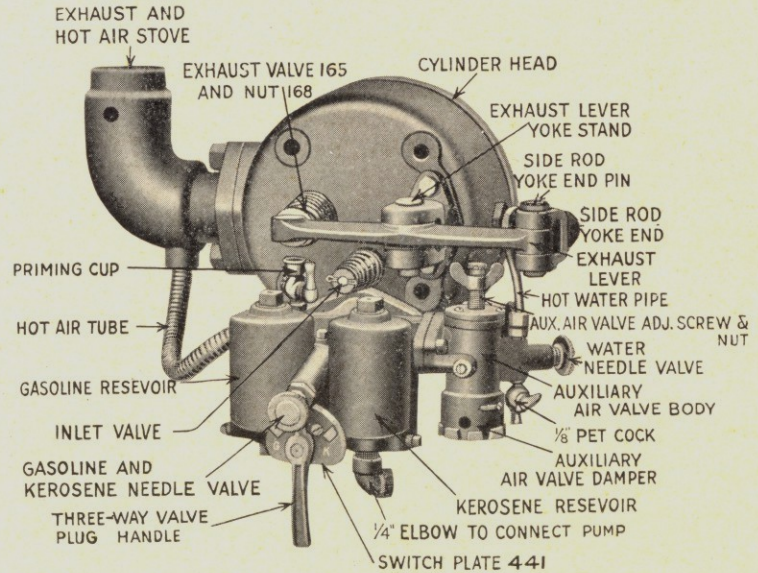
Kerosene Engines in the larger sizes will not work satisfactorily unless a certain amount of water is introduced into the explosion chambers when engine is under load but when idling or under no load the water is undesirable.

In Sandwich Kerosene Engines, "Big 6" horse-power and larger, this requirement is met by the use of an automatically operated water valve, which feeds just the right proportion of water as load increases, and closes entirely, shutting off the water feed, when the engine is stopped or load removed. In other kerosene engines this variation must be taken care of entirely by hand adjustment, and if the water is not turned off when engine is stopped the engine will flood.

This water feed valve, together with our wonderful auxiliary fuel feed valve, give to our kerosene engines unusually fine regulation, with quick recovery on uneven and varying loads, which make them very popular for lighting purposes or for work where the load varies quickly from one extreme to the other.

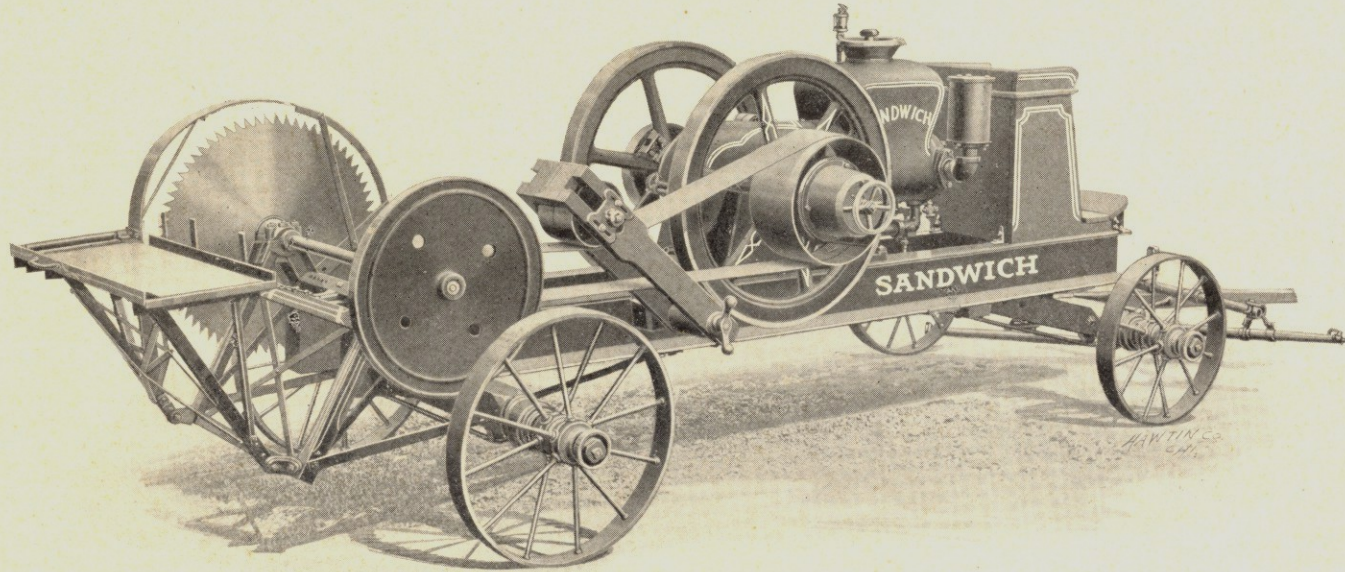


SECTIONAL VIEW KEROSENE SPRINGLESS THROTTLE GOVERNOR



KEROSENE CARBURETOR

The Sandwich Portable Wood Sawing Outfit with Tilting Table



Is mounted on heavy channel steel sills, properly trussed and braced to withstand any strain to which this outfit may be subjected. The bed or sills are mounted on heavy trussed axles with $3\frac{1}{4}$ x 10-inch skeins. The wheels are steel, 34 x 3 inches rear and 26 x 3 inches in front. The saw frame is of heavy steel angles securely bolted and braced, and is equipped with tilting table.

Equipment—Code Word, Buzzing—Mounting bed, steel tilting saw frame, belt, belt tightener, neckyoke and whiffletrees. Sandwich Gasoline Engine, sizes Light Six, Big Six, 8 or 10 horse-power with friction clutch pulley and 24-inch to 30-inch saw blades. Weight, with six horse-power engine, 2,510 pounds. Note, outfit is complete.

Sandwich Portable Wood Sawing Outfit with Swing Saw

The movable table type of wood-sawing outfit, such as we have furnished with our combination rigs, has been popular and has had a large sale for many years. We have, however, noted a growing desire—especially on the part of men who handle a great deal of wood—for something better,—a rig that would give relief from the tiresome tilting of the stick to the saw and that would be faster and less likely to “pinch” the saw. We believe we have met that demand in the outfit shown on the following page.

The outstanding feature of this saw rig is the fact that the blade swings into the wood; it is either *pulled* forward by a convenient hand grip or *pushed* forward by means of the hand lever shown in cut and operated by a man located on a safe, comfortable platform. For heavy, all day work we consider the latter the preferable method and the operator's time will be offset, or nearly so, by the larger output possible because of the ease with which the saw is controlled, its quick, sensitive action, and the fact that the men serving the saw can devote their undivided effort to the handling of the wood, which, once on the table, is under better control and requires less labor than with the movable table types of sawing outfits.

The saw blade is driven by an eight-inch belt of ample length, controlled by an automatic tightener, so arranged that as the blade is drawn forward and enters the wood the belt tension increases. Once properly aligned, the belt stays in place, it cannot jump off the pulley, and it perfectly transmits the full power of the engine.

The table is of unusually substantial construction; it is long and wide, made of hardwood and very well ironed. It is in a fixed position; the log approaches the saw from the long way of the table, resting firmly upon it, and hence is handled and controlled with

less labor on the part of the operators and no binding or pinching of the blade.

The saw blade when not pulled forward into the wood is entirely covered by a substantial steel guard, which also lessens the annoyance of flying sawdust. But a few moments' work is required to remove the guard and blade.

We use no balance wheel on this saw rig, hence there is nothing to interfere with the handling of long poles, there is less danger in operation and a quick recovery to full speed should the motion slacken when the saw is overcrowded.

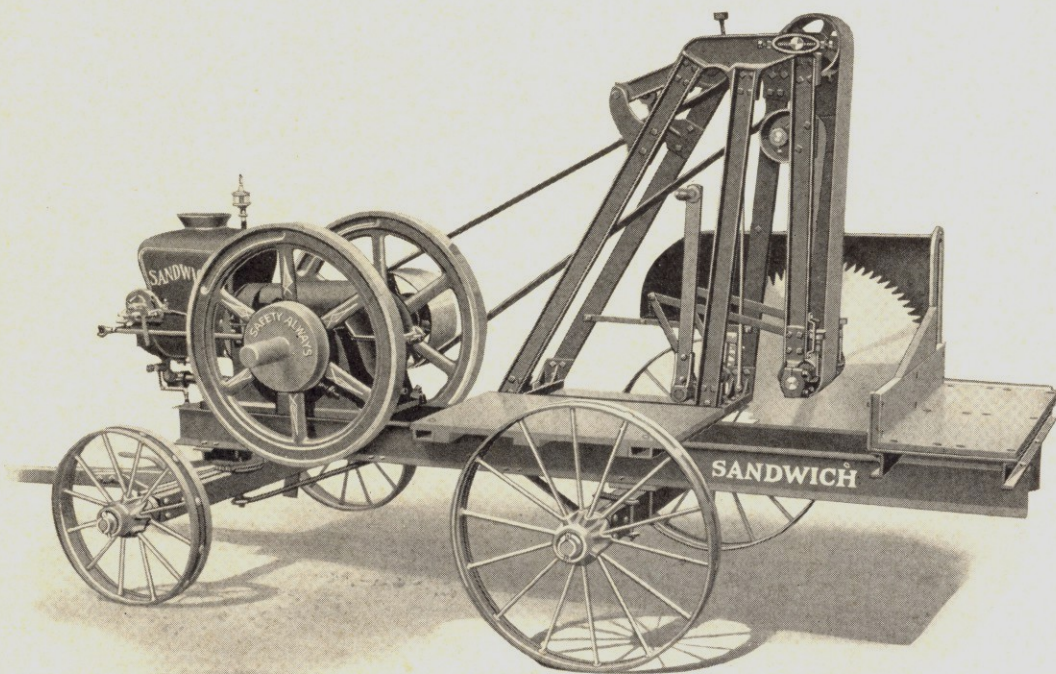
Note the very sturdy construction of the supporting framework, the heavy shafts running in wide, well babitted journals, which are equipped with hard oilers conveniently located.

The truck sills are made of six-inch steel channels, mounted on heavy steel axles, which are carried on 26-inch and 34-inch steel wheels, with four-inch tires.

The engine as regularly furnished by us is our superior “Sandwich Gasoline Engine,” in either 6, 8 or 10 h. p. rating. We can furnish to special order engines equipped for burning either gasoline or kerosene. With our standard rigs the engine is equipped with a friction clutch pulley and the outfit is listed complete with eight-inch drive belt and saw blade up to 30-inch diameter. We can furnish larger blades to special order at small additional charge.

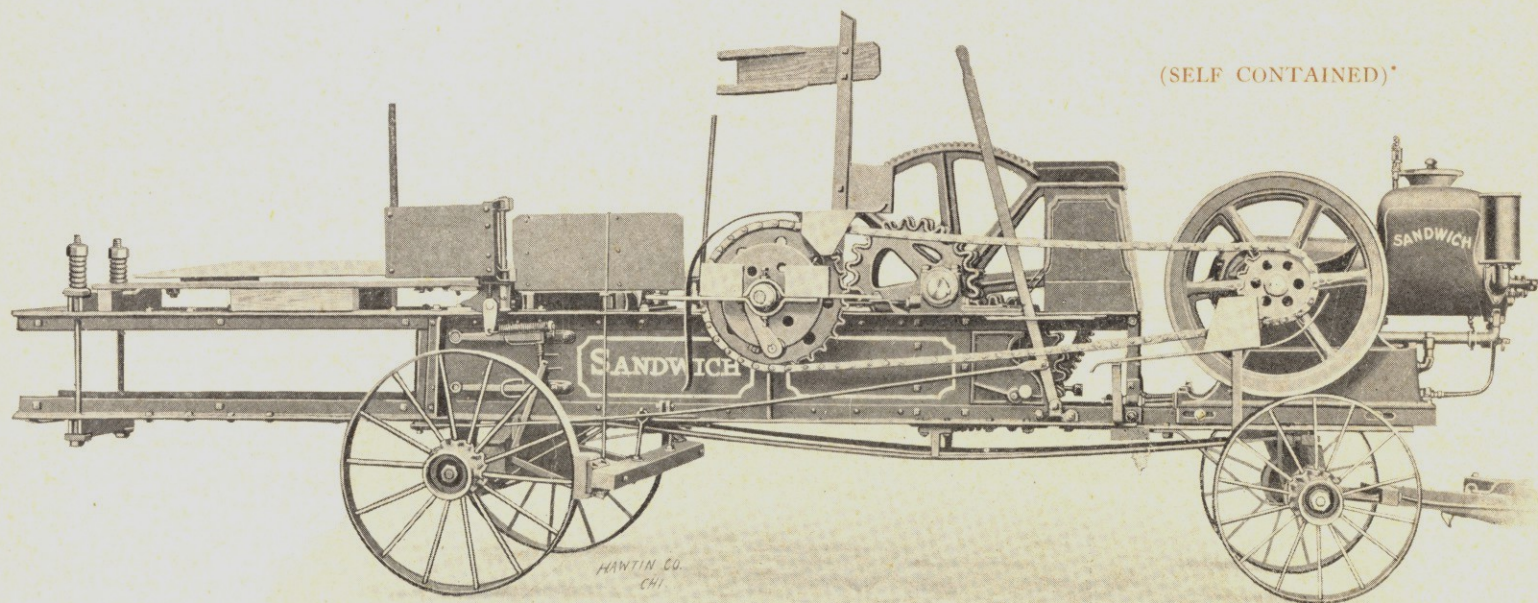
We also supply the outfits less engine ready to mount engine of other make that the buyer may have.

We have given the Sandwich Swing Saw Outfit very thorough tests; it is in service with old sawyers in various parts of the country and it has been gratifying to note the enthusiasm with which it has been received by sawyers of long experience.



NEW MODEL SANDWICH PORTABLE WOOD SAWING OUTFIT WITH OVERHANGING SWING SAW

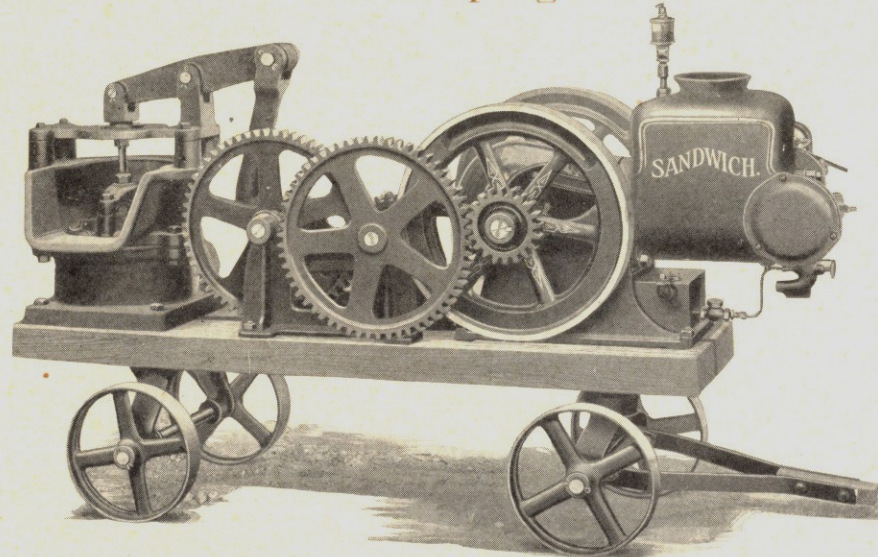
Sandwich Solid Steel Motor Hay Press Combination Equipped with Sandwich Gasoline Engine



A money-maker for jobbing work—A full-grown business outfit. Steel Roller Chain Drive. No belt troubles. Engine delivers full power to press. Friction Clutch on press gives operator complete control. Good sized feed opening. Simple Self-Feeder. Safe and

sure Block Dropper. Long Tying Chamber. Lever Brake. Equipped with Four, Six and Eight Horse-Power Engine. If interested in Hay Presses send for our special Hay Press catalog.

Sandwich Pumping Outfit



SANDWICH ONE AND ONE-HALF HORSE-POWER PUMPING OUTFIT

The Sandwich Pumping Outfit can be operated at a cost of about three cents per hour. It requires no attention while running, and will lift from 3000 to 4300 gallons of water per hour in actual service, capacity depending on conditions under which pump is operated.

This outfit is mounted on a Hand Portable Truck and is operated by a Sandwich $1\frac{1}{2}$ horse-power engine.

The pump is 3-inch suction, diaphragm pattern, especially designed for power use, constructed so that the diaphragm raises or lowers in a straight or vertical line, eliminating all side strain.

Jack—Double Geared, with smooth, easy motion, unaffected by varying pump load.

Sandwich Double-Geared Pump Jacks

The Sandwich Double-Geared Pump Jack is very simple strong, durable, well painted.

The Jack is readily attached to pump, and may be quickly changed from engine drive to hand or windmill power.

The foot rest fastens it securely to the platform.

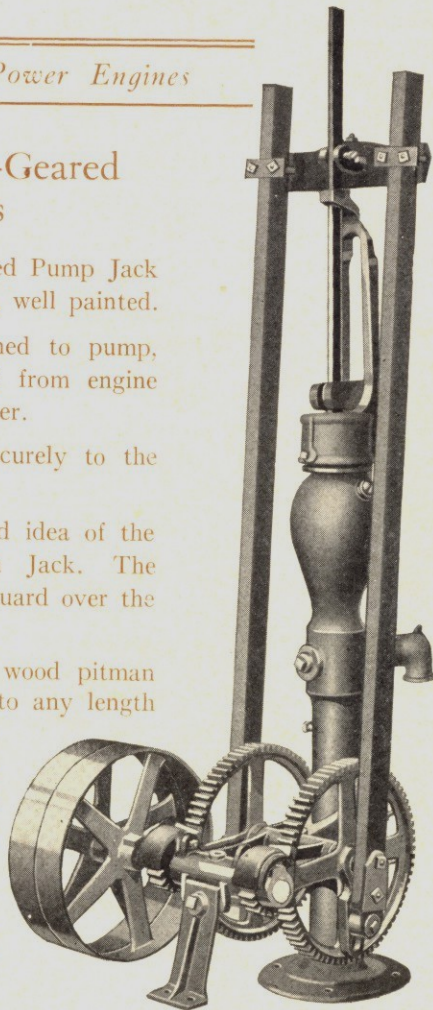
The illustration gives a good idea of the appearance of the Sandwich Jack. The Jack is equipped with a cast guard over the pinion and gear.

The cross head fastens to wood pitman with clamp, hence adjustable to any length of stroke without boring holes.

Pitman attaches at three different points, giving strokes $4\frac{3}{4}$ inches, $7\frac{1}{4}$ inches, and $9\frac{3}{4}$ inches.

Back geared 4 to 1. Pulleys 13 x 2. Shipping weight 96 pounds.

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The Sandwich Economy Grinder

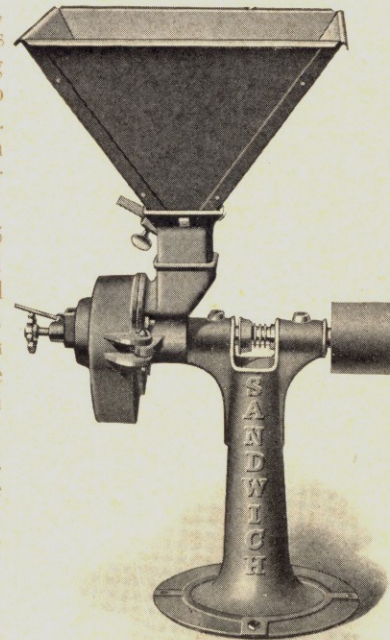
Has solid cast base. Bronze wearing plate for end thrust. Safety springs to protect burrs from nails, nuts, etc., and also to keep burrs apart when machine is running empty. Burr chamber hinges so new burrs may be easily attached. Roomy hopper. Long babbitted main boxes. Size of pulley, 6 x 4, other sizes to order.

Capacity—Excellent, 7 to 25 bushels per hour, varying with kind and condition of grain speed and power. Speed, 300 to 1000 r. p. m., according to power. Shaft, $1\frac{1}{8}$ -inch cold rolled. Burr, 6 inches. One set fine, one set coarse with each machine.

Efficiency—Remarkably good. Considering small purchase price and light cost of power, ground feed is produced at a cost fully justifying the name "Economy."

Handles all kinds of small grains. Produces a very fair grade of table meal.

Weight 74 pounds. Height, 34 inches. Finish, green.





SANDWICH GASOLINE ENGINE OPERATING A SANDWICH FOUR-HOLE SHELLER

WE ALSO manufacture Sandwich Spring and Cylinder Corn Shellers, capacities ranging from 10 to 1200 bushels per hour; Sandwich Hay Presses, thirty-four styles; Sandwich Farm and Bucket Elevators in all lengths; Sandwich Horse Powers, one to ten horse; Clean Sweep and *Easyway* Hay Loaders; Sandwich Steel Side Delivery Rakes, Feed Mills.